Accelerate© - SPB209A EVB- Quick Start Guide

Introduction

This guide will help you to set-up and use the SPB209A Evaluation Kit (EVB) for first time experience. It describes how to connect the device and operate it. For this first release only Wi-Fi driver is validated for operation. Bluetooth and NFC will be added as soon as possible.

Scope of the Demonstration

The purpose of the demo is to illustrate Wi-Fi connection and perform a first through-put test using a Linux computer with operational SDIO slot and the SBP209 mounted on a SD carrier board (SPB209A EVB). For this first demo UDP is used.

Requirements

Things you need to have:
- The SPB209A EVB (SPB209A mounted on the SPB111 SD carrier card).
- A dual band antenna to the SMA connector as the on-board dual band antenna not yet is fully validated.

- A Linux computer with an operational SDIO slot (SDIO operation verified on Lenovo T530, X220, X230 type of computers). Linux kernel 3.10.33 and later and IPERF installed.
- An 802.11 ac AP connected with Ethernet to a Linux Host computer with IPERF installed.

Demonstration Example WiFi

In this example an IPERF client resides on the SPB209A Linux computer and a remote IPERF server running on a computer connected to the Ethernet port of an 802.11 ac AP.

Running the SPB209A EVB IPERF Client Side
- Power up the Linux Computer
- Start a Terminal Window

- Disable the Bluetooth driver by going to the following path:
  /lib/modules/<kernel_version>/kernel/drivers/bluetooth/ and rename the modules btmrvl.ko,
  btmrvl_sdio.ko to *.kox.
- Insert the SPB209A EVB SD carrier card into the SDIO slot

- The SPB209A EVB uses drivers and firmware that is included in the standard Linux distribution from
  version 3.19
- Modules loaded at SPB209A EVB card insert are: mwifiex, mwifiex_sdio.
- This can be validated with the "lsmod" command. Also check that btmrvl and btmrvl_sdio isn't loaded (if
  loaded demount card from SDIO slot and enter command "sudo rmmod btmrvl_sdio and then "sudo
  rmmod btmrvl" .
- Validate that the SPB209A EVB card have been installed by checking the sys log,enter "dmesg" command in
  Terminal Window. It should look like below

```
[128281.045202] mmc0: new high speed SDIO card at address 0001
[128281.045705] mwifiex: rx work enabled, cpus 8
[128281.046930] Bluetooth: vendor=0x2df, device=0x912e, class=255, fn=2
[128282.116764] Bluetooth: FW download over, size XXXXXX bytes
[128282.116796] mwifiex_sdio mmc0:0001:1: FW already running! Skip FW dnld
[128282.844663] mwifiex_sdio mmc0:0001:1: WLAN FW is active
[128282.924085] mwifiex_sdio mmc0:0001:1: info: MWIFIEX VERSION: mwifiex 1.0
(15.68.4.p112)
[128282.924089] mwifiex_sdio mmc0:0001:1: driver_version = mwifiex 1.0 (15.68.4.p112)
```

- Start the 802.11 AC AP and a IPERF Server as per section "Running the IPERF Server Side via 802.11 ac AP"

- Start a WLAN connection either by using the Network manager located up in the right hand corner or
  follow the manual set-up below:

```
sudo ifconfig mlan0 up
sudo iwconfig mlan0 essid NETWORK_NAME key WIRELESS_KEY
sudo dhclient mlan0
```

- Run command "ifconfig" to verify that IP-address has been successfully assigned for the SPB209A EVB
  interface.
- Then start a IPERF Client as per below:

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```
iperf –c <ip-address> -u -i 1 -t 10
```

-c　　　means you are running in client mode, connecting to a "host" which is the IP Address following the –c.
-u　　　Set-up for UDP traffic
–i 1　　means the seconds between periodic graphing and reporting the bandwidth.
–t 10　means the time in seconds to perform the IPerf test the default is set to 10 seconds.

- RX TCP through-put data speed is presented continuously in the Terminal window for given time "-t 10"

Running the IPERF Server Side via 802.11 ac AP

- Power up the 802.11 ac AP (follow AP installation and configuration guide)
- Power up the Linux Host Computer
- Start a Terminal Window
- Enter ifconfig command to get IP address to be used in the IPERF client session
- Start IPERF Server with command "iperf –s –u"

Demonstration Example BT

- Power up the Linux Computer
- Start a Terminal Window
- Disable the WiFi driver by going to the following path:
/usr/lib/modules/<kernel_version>/kernel/drivers/net/wireless/mwifiex/ and rename the modules mwifiex.ko, mwifiex_pcie.ko, mwifiex_sdio.ko, mwifiex_usb.ko to *.kox.
- Insert the SPB209A EVB SD carrier card into the SDIO slot

- The SPB209A EVB uses drivers and firmware that is included in the standard Linux distribution from version 3.19
- Modules loaded at SPB209A EVB card insert are: btmrvl, btmrvl_sdio.
- This can be validated with the "lsmod" command. Also check that mwifiex.ko, mwifiex_sdio.ko isn't loaded (if loaded demount card from SDIO slot and enter command "sudo rmmod mwifiex_sdio and then "sudo rmmod mwifiex".

- Validate that the SPB209A EVB card have been installed by checking the sys log,enter "dmesg" command in Terminal Window.
- Install hcitool dev and check for any new hci device
(https://help.ubuntu.com/community/BluetoothSetup)
- Use hcitool dev to test Bluetooth functionality

Contacts

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